Homework 2: deadline, one week from now, April 23, and submit

to NTUCOOL or email to your TA (within one week). You can form a team

from one to three students to answer these questions. (Need not necessary to be the same team of your term project.)

Read the problems below, and you have to write one to three pages of report

(hand written one is OK), as the potential solutions to the given problems.

The papers are given in the course website.

Please select TWO problems to give your answer.

1. Using the equations given by Chapter 6, page 27 and 28, how to solve the problems given in page 30 (Chapter 6)? Please explain step-by-step of your algorithm, or solutions.
2. Read the paper: An all-in-one solution to geometric and photometric calibration, by Pilet, ISMAR 06. Please explain the solution to page 35 (Chapter 6),

That is, A planar tracking target, such as a textured rectangle, can be used as simple light probe to estimate the dominant lighting direction. A virtual object can have realistic shading and cast a shadow.

1. Read the paper: Real-Time Photometric Registration from Arbitrary   
   Geometry, ISMAR 2012, by Gruber. Please explain the solution to page 37 (Chapter 6). That is, Directional light can be estimated from diffuse objects, such as the church model, and applied to a virtual object, such as the white ball.
2. Read the paper: Paul Debeve, Rendering synthetic objects into real scenes, ACM Siggraph 1998. Please explain the solution to page 46 and 47 (Chapter 6). That is, in “differential rendering”, how to render synthetic objects into real scenes?